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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,605	06/27/2003	Kong Weng Lee	70030259-1	2253

7590 05/31/2005

AGILENT TECHNOLOGIES, INC.

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Intellectual Property Administration

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EXAMINER

MAGEE, THOMAS J

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

fm

<b>Advisory Action</b> <b>Before the Filing of an Appeal Brief</b>	Application No. 10/608,605	Applicant(s) LEE ET AL.	
	Examiner Thomas J. Magee	Art Unit 2811	

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 08April 2005 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
 b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
 Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**NOTICE OF APPEAL**

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

**AMENDMENTS**

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
 (a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);  
 (b) ☐ They raise the issue of new matter (see NOTE below);  
 (c) ☒ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

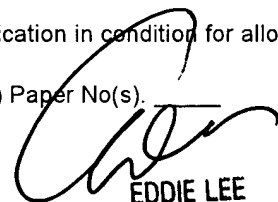
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
 5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
 6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
 7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
 The status of the claim(s) is (or will be) as follows:  
 Claim(s) allowed: \_\_\_\_\_.  
 Claim(s) objected to: \_\_\_\_\_.  
 Claim(s) rejected: 1-20.  
 Claim(s) withdrawn from consideration: \_\_\_\_\_.

**AFFIDAVIT OR OTHER EVIDENCE**

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
 9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
 10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

**REQUEST FOR RECONSIDERATION/OTHER**

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: (See attached sheet).  
 12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s).  
 13. ☐ Other: \_\_\_\_\_.

  
**EDDIE LEE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**

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Item 3a) :

The proposed amendments to Claims 1, 6, 11, and 16 will not be entered because they raise new issues that would require further consideration and/or search.

Item 11 :

The request for reconsideration has been carefully considered, in terms of Arguments presented by Applicant relevant to Claim rejections, but these have not been found to be persuasive.

With regard to Claim 6, (pp. 6 – 7, Response) Applicant is correct in the contention that (31) is the bond pad element and (61) is an interconnecting structure. There was a mistype of numbers and (31) is correct, as stated in the earlier Non-Final action. Remaining remarks are addressed to an amendment, and as stated above, further consideration and/or search will be required.

With regard to Claim 11, (pp. 7 – 8, Response) the (unamended) claim recites, “*a bonding pad located on one of the major surfaces,*” and Figure 1 discloses (22) a bonding pad on one of the major surfaces (Col. 3, lines 41 – 47), such that the reference reads on the recited claim.

With regard to Claims 3 and 8 (pp.8 – 10, Response), it should be noted that the Office Action recites the referenced article as evidence that multilayer laminate boards are well known and widely used in the art, a fact to which Applicant concedes (p. 9). The contention by Applicant that it would not be obvious to use the multilayer laminate boards with Wyland is not correct.

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Wyland discloses (Abstract) that the invention includes a thermally conductive foam to conduct heat away from the device. As such, it is both an intent and an objective in the invention of Wyland to reduce heating of the device (Col. 1, lines 16 – 29). The design and use of multilayer boards with interlayer (metal) layers has been routinely used and provides an avenue for additional dissipation (See, for example, Adam, Proc. IEEE Semi-Therm Symp., 1994) Hence, the use of multilayer boards in Wyland has more than adequate motivation for combining.

With regard to Claims 5, 10, 15, and 20, (pp.10 – 12, and 16, Response), attempts to place Wilson et al. into class 438 are not germane, since Wilson et al. is a textbook and a non-patent literature source. Further, the actual cost analysis of process steps is also not germane and beyond the purview of this Office Action. In regard to signal delay, Applicant has misread the Wilson et al. reference (p. 870). For “long” lines of increased width, as present in Wyland, the advantage is to tungsten. Hence, there is both advantage and motivation for modifying Wyland and including tungsten as the interconnect.

With regard to Claim 9 (pp. 12 – 14, Response), the advantages of using copper for contact bond pads (13) (Figure 1) in Moyer et al. is conceded by Applicant (p. 13). Since a solder layer (Col. 7, lines 19 – 21) is present on bond pad 31 in Wyland, the motivation for combining Wyland and Moyer et al. is clear, i.e., to improve solder bonding to the bond pad layer (Moyer et al., Col. 2, lines 19 – 21). Prima facie obviousness is indeed established. Contentions that

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Moyer et al. is non-analogous art (p. 13) are not germane, since Moyer et al. is clearly disclosing within the semiconductor device/packaging area and is disclosing a "layered structure" (Col. 2, line 54).

With regard to Claims 13 and 18 (pp. 15 – 16, Response), Horiuchi et al. disclose that the substrate 5 is a "resinous substrate" (epoxy) (Col. 3, lines 50 – 51), but do not disclose that it is a multilayer laminate structure. Since the Electronic Packaging and Production article is used to identify such structures as routine in the art, it is apparent that a multilayer board could be used in Horiuchi et al to improve reliability and heat flow, as discussed for Claims 3 and 8. Further, as mentioned for Item 3 above, the amended claims will require further search and consideration.

With regard to Claim 19 (pp. 16 – 17, Response), as discussed for Claim 9, the advantages of using copper for contact bond pads (13) (Figure 1) in Moyer et al. is conceded by Applicant (p. 13). Since a solder layer is present on bond pad in Horiuchi et al., the motivation for combining Wyland and Moyer et al. is clear, i.e., to improve solder bonding to the bond pad layer (Moyer et al., Col. 2, lines 19 – 21). Prima facie obviousness is indeed established.

The article by J. Adams, "New Correlations Between Electrical Current and Temperature Rise in PCB Traces," is included herein only as a reference to support the response above.